

XXXVII.—*New Genera and Species of Blood-sucking Muscidae from the Ethiopian and Oriental Regions, in the British Museum (Natural History)*. By ERNEST E. AUSTEN.

STOMOXIDINÆ.

Genus LYPERSIA, Rond.

*Lyperosia punctigera*, sp. n.

♀.—Length (2 specimens) 3·2 to 3·25 mm.; width of head 1·2 mm.; width of front at vertex 0·4 mm.; length of wing 3·5 mm.

*Thorax greyish, with lighter median longitudinal stripe and darker markings behind suture; abdomen olive-grey\*, dorsum with a sepia-coloured elongate median spot or tapering stripe on second and following segments, second and third segments in addition each with a pair of large and conspicuous, transversely oval, clove-brown spots; wings hyaline, iridescent; legs cream-buff or buff, hind tibiæ dusky, tips of hind femora especially on inner side, hind tarsi, and last three joints of front and middle tarsi dark brown.*

*Head* light grey, front relatively broad, sides of front (parafrontals) very conspicuous, frontal stripe clove-brown, its sides nearly parallel, though slightly outwardly convex in middle, vertical, frontal, and orbital bristles dark brown; *proboscis* short, horizontal portion approximately equal in length to vertical diameter of head, mummy-brown, distal portion immediately before labella dark brown; *palpi* not or scarcely projecting beyond proboscis, not clavate, or at least sides of distal half parallel, buff, tips brown, clothed with short black bristles, coarser, longer, and especially conspicuous at tips; *antennæ* dark brown, upper distal angle of second joint cinnamon-rufous, arista brown, extreme base and a band before middle pale, upper side with about six hairs. *Thorax*: humeral calli and anterior end of median stripe of a lighter grey than remainder of dorsum; in front of transverse suture an ill-defined stripe of darker grey on each side of median stripe, continued behind suture as a tapering mummy-brown stripe, which terminates at a point midway between suture and front margin of scutellum;

\* For names and illustrations of colours, see Ridgway, 'A Nomenclature of Colors for Naturalists' (Boston: Little, Brown, & Company, 1886).

between termination of mummy-brown stripe and lateral margin on each side is an elongate fusiform mummy-brown spot; pleuræ light grey; scutellum of same colour as portion of dorsum in front of it; hairs and bristles on thorax black. *Abdomen*: elongate median spot on second and third segments shaped like a truncate isosceles triangle, with base resting on front margin of segment and apex not or scarcely reaching hind margin; median spot on fourth segment narrower, in shape of a slender, tapering, longitudinal stripe, on each side of which is a roughly quadrate patch of light mummy-brown dots, which may be more or less confluent; clove-brown transversely oval spots on second and third segments not in contact with front, hind, or lateral margins; hair on abdomen uniformly dark brown. *Wings*: veins brown; first posterior cell distinctly contracted at tip; posterior transverse vein strongly bent outwards.

Uganda: two specimens (co-types) from the Nile Province, June 1906 (*the late Dr. W. A. Densham*). The collector's field-note on this species is as follows:—"These flies were noticed in great numbers in one camp only near the Nile, and were very troublesome to my boys early one sunny morning; they clustered thickly on any small sore, and quickly filled themselves; though preferring to feed in this way, they seemed also to insert the proboscis into sound skin."

The conspicuous abdominal markings described above are an unusual feature in *Lyperosia*, and will enable the present species (of which a coloured figure will appear shortly in an official publication) to be distinguished without difficulty from any of its congeners hitherto described.

#### Genus STYGEROMYIA, Austen.

(Ann. & Mag. Nat. Hist. ser. 7, vol. xix., May 1907, p. 445.)

#### *Stygeromyia sanguinaria*, sp. n.

♂ ♀.—Length, ♂ (1 specimen) 7 mm., ♀ (1 specimen) 6.75 mm.; width of head, ♂ 2.6 mm., ♀ 2.4 mm.; width of front at vertex, ♂ 0.5 mm., ♀ 0.6 mm.; length of wing 7 mm.

Grey, clothed with black hairs and bristles, ♀ somewhat darker than ♂; closely resembling *Stygeromyia maculosa*, Austen (*loc. cit.* p. 447), in general appearance and also in markings of dorsum of thorax, but distinguished by abdomen being without sharply defined mummy-brown spots, not in contact with hind margins of segments, and by proboscis, except

tip, being orange-buff or ochraceous-buff, instead of dark chestnut-brown; dorsum of abdomen with a narrow, dark brown, median, longitudinal stripe, and more or less distinct dark blotches on hind borders of second and third segments. †

*Head*: face and front yellowish silvery in ♂, darker, shimmering yellowish in ♀; in both sexes jowls yellowish grey, occiput grey; frontal stripe walnut-brown, in ♂ very narrow, about half as broad again as orbits, its sides straight and parallel, in ♀ rather less than twice as broad as orbits, widening very slightly below, its sides straight; *proboscis* slightly deeper at base in ♂, labella shining clove-brown on outer side; *palpi* buff, agreeing with generic diagnosis, clothed on outer side with black bristles; *antennæ* similar to those of *S. maculosa*, first and second joints and base of third joint on inner side below cinnamon-rufous, remainder of third joint dark brown, greyish in certain lights, arista dark brown, with 12 hairs. *Thorax*: markings on dorsum dark brown to dark cinnamon-rufous, somewhat lighter than in *S. maculosa*, but precisely similar to those in that species in general arrangement, median stripe in ♂ only visible behind transverse suture, and not reaching inner dorso-central bristles, median stripe in ♀ apparently entire, extending from front to hind margin; scutellum yellowish at tip, and also in centre of disc in case of ♂, in which it is also slightly brownish in centre of base, when viewed at a low angle from behind (scutellum of type of ♀ damaged). *Abdomen*: median dorsal stripe commencing on first segment close to hind margin, broadest on second segment, becoming successively narrower on following segments, extremely slender (linear) on fourth segment in ♂, indistinctly interrupted on hind margins of second and third segments, and not reaching hind margin of fourth segment; hind margin of first segment somewhat infuscated, at least in ♀, dark brown blotches on hind borders of second and third segments not in contact with median stripe, but situated one on either side of middle line, between median stripe and lateral margin, much more distinct and larger in ♀, in which they are roughly triangular and extend forwards beyond middle of segment, in ♂ less deep, ill-defined and dying away in front on second segment, and on third segment forming an interrupted transverse band; *skin clothing venter* bright buff-yellow, small median oval scutes grey. *Wings*: in ♂, venation and opening of first posterior cell precisely as in *S. maculosa* ♂; in ♀, bend of fourth longitudinal vein somewhat more abrupt and opening of first posterior cell slightly wider. *Halteres* cream-buff. *Legs*: in ♂, coxæ grey, trochanters

ochraceous-buff, front femora and tibiae buff (front tarsi and remainder of legs missing in type); in ♀, coxæ and trochanters as in ♂, femora ochraceous-buff, hind femora darkish grey on outer side on rather more than distal half, tibiae buff, middle and hind pairs more or less greyish, all tarsi dark brown; hairs and bristles black.

Congo Free State and Nyasaland Protectorate: type of ♂ from Ruwe, West Lualaba, Katanga District, Congo Free State, March 1906 (*Dr. A. Yale Massey*); type of ♀ from Monkey Bay, Lake Nyasa, Nyasaland Protectorate, 21. iv. 1908 (*Captain Hallam Hardy, R.A.M.C.*). Writing on Aug. 9, 1907, with reference to the specimen taken by him, *Dr. Yale Massey* remarked:—"On going over my notes I find that this fly was taken within half a mile of my house at Ruwe, in open bush and on high ground. My attention was attracted by its biting me on the hand, causing pain similar to that produced by the bite of a Tsetse: this was the only specimen seen on that occasion. The fly was caught but a few hundred yards from the cattle kraal, but I have no evidence that it bites cattle. A few days later I saw two specimens, evidently of the same fly, but failed to catch either; they were very quick in their movements; I have not met with another specimen since."

As may possibly be remembered, in default of actual observations, the blood-sucking habit of *Stygeromyia maculosa*, Austen (the type of the genus, described from a specimen from Little Aden, Arabia), was inferred "from its evident affinities and from the shape of its proboscis" (*cf.* Austen, *Ann. & Mag. Nat. Hist. loc. cit.* p. 448). It is therefore gratifying to find that the inference in question receives collateral support from *Dr. Yale Massey's* personal experience in the case of the present species.

#### Genus HÆMATOBIA, Rob.-Desv.

##### *Hematobia sanguisugens*, sp. n.

♂.—Length (6 specimens) 5.5 to 6 mm.; width of head 1.75 to 2 mm.; width of front at vertex 0.25 mm.; length of wing 5 to 5.6 mm.

*Olivaceous-grey or brownish grey, with clove-brown markings: dorsum of thorax with two pairs of clove-brown longitudinal stripes (outer stripes broader and widely interrupted at transverse suture), and a less sharply defined median stripe; dorsum of abdomen with a clove-brown median longitudinal stripe, extending from front margin of second to beyond middle*

of fourth segment, narrowly interrupted before hind margins of second and third segments, a pair of transversely elongate dusky blotches on first segment, a pair of large clove-brown spots on second segment, and a pair of similar but smaller spots on third segment; wings slightly infuscated, light sepia-coloured; legs clove-brown, bases of tibiae ochraceous-buff.

*Head*: face and sides of front bright yellowish grey, occiput dark grey, frontal stripe clove-brown, hair and bristles black; *palpi* tawny, clothed on outer side with black bristles, tips strongly spatulate (as in *H. stimulans*, Mg.), extreme tips sometimes brown; *proboscis* clove-brown; *antennæ*, including arista and its hairs, clove-brown, under side of arista usually with four hairs. *Thorax* clothed exclusively with black hairs and bristles; dorsum lighter grey on front margin and humeral calli, admedian stripes extending from front margin to about half-way between transverse suture and præscutellar groove, portion of outer stripes behind transverse suture extending somewhat further back, median stripe usually extending from front to hind margin, but its anterior extremity sometimes indistinct. *Abdomen* clothed exclusively with black hairs, median longitudinal stripe on dorsum regularly diminishing in width from front to rear, dusky blotches on first segment clove-brown, but lighter in tint than spots on the two following segments, spots on second segment triangular in shape, near but not in contact with hind margin, spots on third segment rounder, sometimes quite small. *Wings*: veins for most part dark brown, first longitudinal vein either entirely bare or at most with one or two minute black bristles near base, third longitudinal vein with three or four very minute black bristles at base. *Squamæ*: anterior squama cream coloured, shining and iridescent, posterior squama buff. *Halteres* buff. *Legs* clothed exclusively with black hair and bristles, femora and tibiae greyish beneath.

India: type and five other specimens from Kasauli, Punjab, 1907, "on cows" (*Lieut.-Colonel F. Wyville Thomson, I.M.S.*). The donor's field-note runs:—"Caught on cattle: the flies sucked the animals, and their abdomens became distended with blood. I have never noticed them biting man."

*Hematobia sanguisugens* ♂ resembles the ♂ of the European *H. stimulans*, Mg., very closely, but is distinguished by its usually somewhat smaller size (*average length* of 6 ♂ ♂ 5.75 mm.), by the median dark dorsal stripe on the abdomen being practically continuous throughout its extent instead of widely interrupted before reaching the hind margins of the



second and third segments, by the fourth abdominal segment in the ♂ being always without a pair of dorsal spots, and by the first longitudinal vein being either entirely bare or having at most one or two minute bristles, instead of a row of bristles conspicuous under a strong lens when viewed at a low angle from the direction of the hind margin of the wing.

*BDELLOLARYNX* \*, gen. nov.

*Small, stoutly built, thick-set flies, closely allied to Hæmatobia, Rob.-Desv., but distinguishable as follows:—No sexual colour-dimorphism (unless it be in wings); front, facial angles, and anterior margin of buccal cavity less prominent; jowls descending considerably behind, instead of nearly horizontal, but basi-occipital region much less protuberant; bristles below facial angles small and fine, instead of relatively coarse; in ♂, front wider, with upper inner margins of eyes more nearly parallel, less approximate in middle of front; arista feathered above with considerably longer hairs, and below with about six fairly long hairs; first and third longitudinal veins entirely bare, without bristles at base.*

*Head: palpi spatulate at tips; proboscis as in Hæmatobia, slightly tapering, proximal two-thirds somewhat thickened. Thoracic bristles:—Humeral, 2. Post-humeral, 1. Notopleural, 2. Præsutural, 1. Supra-alar, 1. Intra-alar, 1. Post-alar, 2. Dorso-central, 5 (2 in front of and 3 behind suture—may be difficult to distinguish, especially in ♀). Inner dorso-central, 1 (sometimes 2 in ♂). Scutellar, 4 (1 præbasal, 1 basal, 1 discal—situated close to lateral margin, 1 apical). Mesopleural, about 10 or 12. Sterno-pleural, 1:1.*

*Wings: shape of first posterior cell similar to that of same cell in wing of Hæmatobia, but bend of terminal portion of fourth longitudinal vein somewhat flatter and less abrupt.*

*Bdellolarynx* is distinguished from *Hæmatobosca*, Bezzi, by the palpi being much more spatulate at the tips, by the arista having a greater number of hairs below, and, in the wing, by the shape of the first posterior cell and the course of the terminal portion of the fourth longitudinal vein (in *Hæmatobosca* the latter details are the same as in *Stygeromyia*, Austen).

Typical species, *Bdellolarynx sanguinolentus*, sp. n.

*Bdellolarynx sanguinolentus*, sp. n.

♂ ♀.—Length, ♂ (3 specimens) 4·75 to 5 mm., ♀ (4

\* ὁ βδέλλο-λάρυγξ, leech-throat, a name applied to a greedy parasite.

specimens) 3.5 to 4.25 mm.; width of head, ♂ 1.8 mm., ♀ 1.4 to 1.6 mm.; width of front at vertex, ♂ 0.25 mm., ♀ 0.5 to 0.75 mm.; length of proboscis 1.4 mm.; length of wing 4 to 4.8 mm.

*Mouse-grey or slate-grey, clothed with short black hair, bristles also black; palpi buff; dorsum of thorax with a pair of extremely narrow, widely separated, parallel, longitudinal, admedian, blackish stripes, a somewhat triangular blackish mark extending backwards from inner end of each humeral callus, and an elongate blackish streak in a line with latter mark behind transverse suture (two outer marks less distinct in ♀); dorsum of abdomen with a narrow, interrupted, longitudinal, median, clove-brown stripe, and, on second and third segments, paired transverse, roughly triangular, clove-brown blotches, the pair on second segment especially large; wings hyaline or tinged with tawny olive in ♂, hyaline in ♀; femora greyish clove-brown, extreme tips ochraceous-buff, one or more pairs sometimes more or less brownish except at base, tarsi dark brown.*

*Head:* frontal margins and sides of face light grey or yellowish grey; *frontal stripe* clove-brown, in ♂ narrow, somewhat attenuate in middle, where its width is approximately equal to that of frontal margin, in ♀ broad, at least twice or rather more than twice as broad as frontal margin, with its outer edges convex; *palpi* clothed on outer side with black bristles; *proboscis* burnt umber-coloured, dark brown at tip, projecting slightly beyond palpi; *antennae*, including arista and its hairs, clove-brown, arista with a lighter band. *Thorax:* admedian stripes not diverging posteriorly, sharply defined from front margin to a point about midway between transverse suture and præscutellar furrow, after which their continuations to præscutellar furrow are broader and less clearly marked; transverse suture blackish; thoracic markings not so conspicuous in ♀ as in ♂. *Abdomen:* anterior margin of second and following segments black and shining, broader towards sides, especially conspicuous in ♀; median stripe commencing on front margin of second and extending to or not quite reaching middle of fourth segment, widely interrupted before meeting hind margins of second and third segments; dorsum of first segment in ♀ sometimes with a pair of clove-brown blotches, much smaller than those on two succeeding segments; dorsum of fourth segment in some specimens with traces of a pair of small dark spots; venter yellowish grey, median scutes clove-brown. *Squamæ* and *halteres* cream-buff. *Legs:* in one female posterior femora are

entirely ochraceous-buff, except for a brownish blotch just before distal extremity.

India and Ceylon: type of ♂ from the environs of Calcutta, India, 8. ii. 1905 (*E. Brunetti*); type of ♀ and another ♀ from Mussoorie, United Provinces, India, September 1906 (*F. M. Howlett*); additional specimens from Allahabad, United Provinces, India, 6. x. 1905 (*F. M. Howlett*); Sylhet, Assam, India, 13. iv. 1905 (*Major Hall, J.M.S.*); and Henaratgoda and Haldumulla, Ceylon, 7. ii. & 14. vi. 1892 (*Lieut.-Colonel Yerbury*).

### Genus STOMOXYs, Geoffr.

#### *Stomoxy's limbata*, sp. n.

♂.—Length (3 specimens) 4·8 to 5·5 mm.; width of head 1·6 to 2 mm.; width of front at vertex 0·4 mm.; length of wing 4·6 to 5·25 mm.

*Smoke-grey: face and sides of front bright yellowish-silvery, front narrow; dorsum of thorax with usual clove-brown longitudinal stripes, admedian stripes narrow and wide apart; dorsum of abdomen with deep clove-brown or blackish transverse band on hind border of each of first three segments; wings with a brownish tinge; femora dark clove-brown, their extreme tips and base of hind tibiæ ochraceous-buff, front and middle tibiæ and tarsi mummy-brown, hind tarsi and hind tibiæ except base sepia-coloured.*

*Head: frontal stripe clove-brown, slightly constricted in middle; occiput dark grey, latero-posterior orbits grey; palpi buff; antennæ greyish brown, tip of second and extreme base of third joint ochraceous-rufous. Thorax: admedian stripes on dorsum extending from front margin to a point rather less than half-way between transverse suture and præscutellar groove, outer stripes much broader and conspicuously interrupted by transverse suture; mesopleural bristles fairly stout. Abdomen: dark band on dorsum of second segment occupying more than half the segment, bands on first and third segments narrower; second and third segments usually with a narrow median clove-brown stripe, which on third segment may be obsolete. Squamæ strongly tinged with brown. Halteres buff.*

India: Calcutta, 16. vi. 1907; additional specimens from Port Canning, Lower Bengal, 21. vii. 1907 (*Dr. N. Annandale*), and Calcutta, 20. viii. 1907, are in the collection of the Indian Museum.



What appears to be the female of this species may be characterized as follows:—

♀.—Length (3 specimens) 5·5 mm.; width of head 1·8 to 2 mm.; width of front at vertex just over 0·5 mm.; length of wing 4·75 to 5·5 mm.

*Apart from usual sexual differences agreeing essentially with ♂, except that dark markings on dorsum of thorax and abdomen are paler (olive-brown instead of clove-brown or blackish), that the wings although brownish are less noticeably infuscated, that the squamæ are paler (whitish or yellowish white), and that the front and middle tibiæ are also brighter in hue.*

*Head*: face silvery, sides of front light smoke-grey, duller than in ♂; frontal stripe clove-brown, its sides somewhat convex below middle; *palpi* and *antennæ* as in ♂. *Abdomen*: median longitudinal stripe on dorsum broader and less sharply defined than in ♂. *Legs*: tarsi and hind tibiæ except base mummy-brown.

India and Ceylon: type from Sylhet, Assam, India, 11. ii. 1905 (*Major E. A. W. Hall, I.M.S.*); a second specimen from same locality and collector, 31. i. 1905, received for determination from Indian Museum, Calcutta; a third specimen, from Peradeniya, Ceylon, 22. v. 1892 (*Lt.-Col. Yerbury*).

*Stomoxys limbata* is closely allied to *St. nigra*, Macq., but is distinguished by the front in the ♂ being somewhat narrower, with the frontal stripe slightly constricted in the middle, instead of having its sides parallel, and in the ♀ by the front and middle tibiæ being mainly ochraceous instead of for the most part clove-brown or blackish.

*Stomoxys pusilla*, sp. n.

♂.—Length (2 specimens) 4·2 to 4·5 mm.; width of head 1·4 to 1·5 mm.; width of front at vertex 0·4 mm.; length of wing 4·25 to 4·5 mm.

*Dorsum of thorax* mouse-grey or yellowish grey, with usual clove-brown longitudinal stripes; *dorsum of abdomen* olive-grey, first segment, except a small ill-defined area in centre (not reaching hind margin), second segment, either entirely or with exception of extreme front margin, and a median longitudinal stripe and fairly deep posterior transverse band on third segment clove-brown; *sides of front and sides of face*, when viewed from above, light maize-yellow; *wings* brownish; *femora* clove-brown, *front and middle tibiæ and tarsi* and extreme tips of front and middle femora buff, *hind tibiæ and tarsi* light mummy-brown, base of tibiæ paler.

*Head*: occiput grey; front fairly narrow, frontal stripe clove-brown, constricted in middle, sides of front conspicuous; *palpi* buff; *antennæ* dark brown or mummy-brown, tip of second and extreme base of third joint ochraceous rufous. *Thorax*: admedian stripes on dorsum moderately wide apart, their width about half that of outer stripes at widest portion of latter; length of admedian stripes as in foregoing species; *pleuræ* mouse-grey, *mesopleuræ* dark brown, at any rate when viewed at certain angles. *Abdomen*: median longitudinal stripe on dorsum of third segment fairly broad. *Squamæ* and *halteres* as in foregoing species.

India: type and one other specimen from Allahabad, United Provinces, October 1905 (*F. M. Howlett*).

*Stomoxys pusilla* differs from *St. limbata* in its smaller size, in the yellower colour of the sides of the front and face, in the dorsum of the second abdominal segment being entirely clove-brown or practically so, instead of having a clove-brown posterior transverse band and median longitudinal stripe, and in the pale tibiæ and tarsi of the front and middle legs.

*Stomoxys pulla*, sp. n.

♂.—Length (2 specimens) 4.2 to 4.4 mm.; width of head 1.6 to 1.8 mm.; width of front at vertex 0.4 mm.; length of wing 4.2 to 4.6 mm.

*Very dark species*: when viewed from above body appearing almost uniformly clove-brown, extreme front margin of thorax mouse-grey, with commencement of usual clove-brown longitudinal stripes; when abdomen is viewed from behind, at a very low angle, terminal segment appears olive-grey, while second and third segments may appear more or less mouse-grey, with clove-brown transverse blotches, and perhaps a trace of a narrow median longitudinal stripe; front narrow, occupied for most part by frontal stripe, sides of front not noticeable except anteriorly; wings brownish; legs clove-brown, tibiæ ochraceous-buff at extreme base, first joint of front tarsus fringed on inside with a row of hairs of equal length, claws black.

*Head*: sides of front anteriorly yellowish, face silvery, upper portion of occiput clove-brown, basi-occipital region and latero-posterior orbits grey; frontal stripe clove-brown, slightly or scarcely constricted in middle; *palpi* buff; *antennæ* uniformly clove-brown. *Thorax*: *pleuræ* dark grey, *mesopleuræ* clove-brown above; lower portion of lateral margin of scutellum, in front of apex, grey. *Abdomen*:

blackish hair on dorsum of fourth segment long and fine. *Squamæ*: thoracal squama brown. *Halteres* buff.

India: type and one other specimen from Mussoorie, United Provinces, September 1906 (*F. M. Howlett*).

This is a very distinct species, which, while resembling the foregoing in size, is at once distinguishable by the dusky coloration of the body and legs, by the sides of the front being scarcely visible except anteriorly, and by the remarkable row of hairs on the inside of the first joint of the front tarsus. Owing to the latter character *St. pulla* ♂ presents some slight approximation to the ♂ of the African *St. omega*, Newst., in which, however, the row of hairs on the inside of the front tarsus extends to the end of the second joint, while the hairs themselves are much longer and conspicuously curled.

MUSCIDÆ.

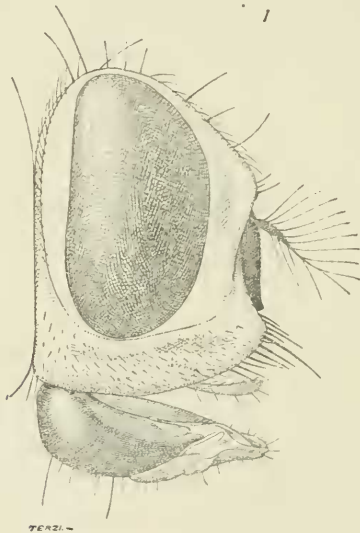
PHILEMATOMYIA \*, gen. nov.

*Greyish flies, not unlike Musca domestica, Linn., in general appearance, but distinguishable at once owing to the remarkable proboscis.—Front in ♂ narrow, its width in centre being from one-eleventh to one-fifteenth of total width of head; width of front in ♀ at vertex one-third of total width of head; proximal portion of proboscis (mentum) a strongly swollen chitinous bulb, distal portion soft and fleshy, folded back under distal end of bulb when not in use, but when in use extended, its terminal section consisting of a "tubular extension," which is protruded from between the labella, and is surrounded at the distal extremity with a circlet of stout chitinous teeth; venation generally as in Musca domestica.*

*Head: arista* feathered as in *Musca domestica*; *palpi* slender, cylindrical, slightly thickened at tips; *proboscis* when not in use can be entirely retracted within buccal cavity, so as to be invisible when head is viewed in profile, but, in dead specimens at any rate, more usually protrudes, projecting downwards at an angle of about 45°; the bulb is polished and bears scattered hairs. When the fleshy distal portion is reflexed beneath distal end of bulb, the extremity of the proboscis has a pointed appearance; the fleshy portion, like the bulb, bears fine hairs; when reflexed, the fleshy portion ends in the *labella*, which therefore come to lie between the pointed tip of the proboscis and the rounded base of the bulb, and, when the proboscis in this condition is

\* φιλαιαῖρος, fond of blood, blood-thirsty; μῦα, a fly.

seen in profile, look like a fleshy pad lying on the under side of the bulb just beyond the middle; when the proboscis is in use the fleshy portion is extended until it lies more or less in a line with the bulb, and the "*tubular extension*" (which, in a fly of normal size, is approximately 0.5 mm. in length) is protruded from between the inner surfaces of the labella, of which surfaces it forms a prolongation; the extension is supported internally by a pair of stout, black, chitinous rods, which are visible through the semitransparent wall, and have their proximal extremities situate between the tips of the



*Philematomyia insignis*, sp. n.

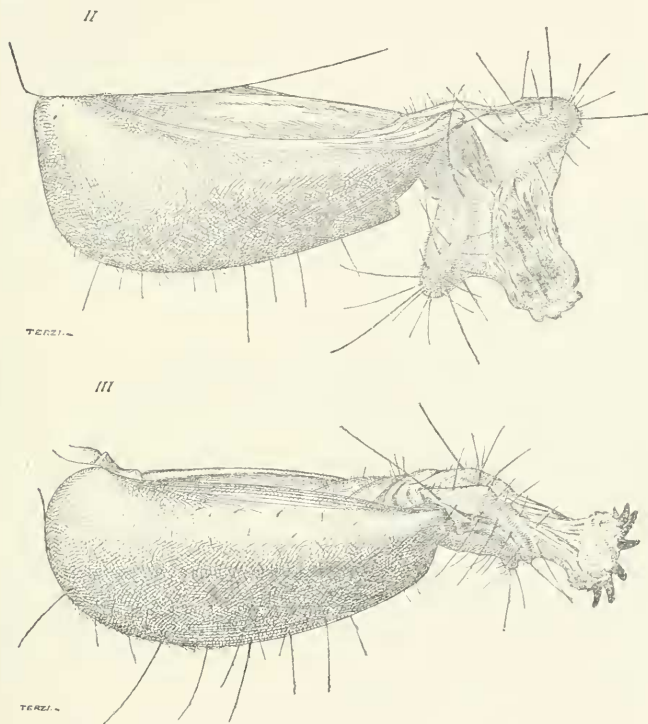
Fig. 1.—Head of ♀ in profile, showing proboscis as it appears when not in use ( $\times 25$ ).

labella; the wall of the extension shows numerous parallel tracheæ; in dried specimens, at any rate, the distal extremity of the extension appears to consist of a thickened fleshy ring, armed with pale yellowish teeth in addition to the circlet of stout, black, pointed, chitinous teeth, which are situate on its inner margin.

*Thoracic bristles*:—*Humeral*, 3 (in ♂ sometimes 4). *Post-humeral*, 1. *Notopleural*, 2. *Præsutural*, 1. *Supra-alar*, 2. *Intra-alar*, 1. *Post-alar*, 3. *Dorso-central*, 4 or 5 (the large and conspicuous bristles alone included—2 or 3 in

front of, 2 behind suture). *Inner dorso-central*, 1. *Scutellar*, 4 (1 præbasal, 1 basal, 1 discal, 1 apical). *Mesopleural*, normally 6 (space between uppermost two greater than that between any other two). *Sternopleural*, 1:2.

*Wings*: venation as in *Musca domestica*, Linn., except that the terminal portion of the fourth longitudinal vein, after



*Philematomyia insignis*, sp. n.

Fig. II.—Proboscis of ♀, with “tubular extension” not quite fully protruded (× about 70).

Fig. III.—Proboscis of ♂, with tubular extension fully protruded, showing cirlet of stout, black, chitinous teeth (× about 70).

*the bend*, is straighter and less incurved, and that the posterior transverse vein is more sinuous; opening of first posterior cell as in *Musca domestica*.

Typical species, *Philematomyia insignis*, sp. n.

The genus *Philematomyia*, of which but a single very widely distributed species has yet been observed, consists of



blood-sucking flies, which form a remarkable connecting-link between the ordinary non-biting Muscinæ and the Stomoxydinæ. In the case of species belonging to the latter group the slender chitinized proboscis (labium) is thrust bodily into the skin of the animal or human being on which the fly is feeding, and so forms a piercing organ. In *Philæmatomyia*, however, there is no actual *piercing* organ, since the fleshy termination of the proboscis is obviously incapable of being thrust into the skin of a vertebrate, and the fly feeds by cutting through the epidermis of its victim by means of the powerful teeth at the end of the tubular extension, and then sucking up the blood in the ordinary way.

*Philæmatomyia insignis*, sp. n.

♂ ♀.—Length, ♂ (17 specimens) 3 to 5·8 mm., ♀ (25 specimens) 4 to 6·5 mm.; width of head, ♂ 1·3 to 2·2 mm., ♀ 1·4 to 2·25 mm.; width of front in centre, ♂ 0·08 to 0·2 mm., ♀ 0·6 to just over 1 mm.; length of wing, ♂ 3 to 5·5 mm., ♀ 3·2 to 5·6 mm.

*Smoke-grey to isabelline grey, or yellowish grey; dorsum of thorax with four dark longitudinal stripes, broader and clove-brown or blackish in ♂, narrower and dark grey or brownish in ♀, ♂ often with an additional, broad, median stripe, most distinct in front and behind; dorsum of abdomen with a transversely elongate dark blotch on first segment, not reaching hind margin, and a small clove-brown median triangle at base of second and third segments, in some specimens also with a similar but smaller and usually lighter mark at base of fourth segment; all hair and bristles on head, body, and legs black; palpi ochraceous-buff; wings hyaline or with a slight ochraceous tinge, veins in proximal half buff or ochraceous-buff; legs black, femora greyish pollinose.*

*Head:* posterior orbits, front, and face yellowish grey or silvery grey, occiput dark grey; *frontal stripe* clove-brown in ♂, greyish clove-brown in ♀, in ♂ extremely narrow, often reduced to a mere line above, but expanding somewhat below, in ♀ broader though still narrow, its sides nearly straight, and its width scarcely exceeding and often distinctly less than that of sides of front; upper inner margins of eyes converging slightly at vertex in ♀; *bulb of proboscis* shining clove-brown; *antennæ* dark brown, tip of second joint narrowly ferruginous, third joint greyish, arista and its hairs dark brown, tip of arista cinnamon-rufous. *Thorax:* outer dark stripes on dorsum not reaching front margin, narrowly interrupted on transverse suture, and behind scarcely ex-

tending to post-alar calli, admedian stripes extending from front margin to about one-third of distance from transverse suture to præsutural furrow, median stripe, when present, usually pointed anteriorly and not extending to front margin, but behind broad and reaching præsutural furrow; below outer dorsal stripe on each side, especially in ♂, there is often an additional dark longitudinal stripe; in ♂ specimens in certain lights a broad dark stripe can be seen running from hind margin of humeral callus, across upper portion of mesopleura, to mesopleural suture. *Abdomen*: venter grey, median scutes darker.

India, Ceylon, Sokotra, Cyprus, Senegal, and Congo Free State: types of ♂ and ♀ and four other specimens from India (*Bombay Natural History Society*); 2 ♀ ♀ from Calcutta, India, 23. vii. 1907, "on draught bullocks, burrowing into the hair" (*received from the Indian Museum, Calcutta*); 1 ♂, 1 ♀, from Mussoorie, United Provinces, India, Sept. 1906, and 1 ♀ from Allahabad, United Provinces, India, 11. x. 1905 (*F. M. Howlett*); 2 ♂ ♂, 5 ♀ ♀, from Bentota, Ceylon, 13. vi. 1891 (*Lt.-Col. Yerbury*); 1 ♂ from Dankotuwa, Ceylon, 1899 (*C. G. Rodrigo*); 2 ♂ ♂ from Hadibu Plain and Dahamis, Sokotra, 12 & 19. xii. 1898 (*W. R. O. Grant*); 3 ♂ ♂, 12 ♀ ♀, from Larnaca, Cyprus, 4. viii. 1908 (*Dr. G. A. Williamson*); 3 ♂ ♂, 1 ♀, from St. Louis, Senegal, W. Africa, 16. v. 1903, "feeding on donkeys on race-course" (*the late Dr. H. E. Dutton and Dr. J. L. Todd*); 1 ♂, 1 ♀ from the Congo Free State, 1903 (*Drs. Dutton, Todd, and Christy*). Writing from Larnaca, Cyprus, on October 23, 1908, with reference to this species, Dr. G. A. Williamson remarked:—"That this is a biting fly my ankles have on many occasions borne evidence, and I notice that horses can stand its bite very little, becoming much more restive than with the *Hippobosca* [*H. equina*, Linn.], which seems to cause them little inconvenience."

XXXVIII.—*On some new Steneosaurs from the Oxford Clay of Peterborough.* By C. W. ANDREWS, D.Sc., F.R.S. (British Museum, Natural History).

[Plates VIII. & IX.]

THE splendid collection of reptilian remains obtained by Mr. A. N. Leeds, F.G.S., from the Oxford Clay in the neighbourhood of Peterborough, includes the skeletons of